

1. An isolated polypeptide selected from the group consisting of:
  - a) a polypeptide comprising an amino acid sequence of SEQ ID NO:1,
  - b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to an amino acid of SEQ ID NO:1,
  - c) a biologically active fragment of a polypeptide having an amino acid sequence of SEQ ID NO:1, and
  - d) an immunogenic fragment of a polypeptide having an amino acid sequence of SEQ ID NO:1.

2. An isolated polypeptide of claim 1 having an amino acid sequence of SEQ ID NO:1.

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3. (Twice Amended.) An isolated polynucleotide encoding a polypeptide selected from the group consisting of:

- a) a polypeptide comprising the amino acid sequence of SEQ ID NO:1,
- b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to the amino acid of SEQ ID NO:1,
- c) a biologically active fragment of a polypeptide having the amino acid sequence of SEQ ID NO:1, wherein said biologically active fragment has serine hydratase activity, and
- d) an immunogenic fragment of a polypeptide having the amino acid sequence of SEQ ID NO:1, wherein said immunogenic fragment generates an antibody that specifically binds to SEQ ID NO:1.

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4. (As Once Amended.) An isolated polynucleotide of claim 3 encoding the amino acid sequence of SEQ ID NO:1.

5. (As Once Amended.) An isolated polynucleotide of claim 4 having the polynucleotide sequence of SEQ ID NO:2.

6. A recombinant polynucleotide comprising a promoter sequence operably linked to a polynucleotide of claim 3.

130472 7. A cell transformed with a recombinant polynucleotide of claim 6.

8. A transgenic organism comprising a recombinant polynucleotide of claim 6.

9. (Twice Amended.) A method of producing a polypeptide selected from the group consisting of:

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- a) a polypeptide comprising the amino acid sequence of SEQ ID NO:1,
  - b) a polypeptide comprising a naturally occurring amino acid sequence having at least 90% sequence identity to the amino acid sequence of SEQ ID NO:1,
  - c) a biologically active fragment of a polypeptide having the amino acid sequence of SEQ ID NO:1, wherein said biologically active fragment has serine hydratase activity, and
  - d) an immunogenic fragment of a polypeptide having the amino acid sequence of SEQ ID NO:1, wherein said immunogenic fragment generates an antibody that specifically binds to SEQ ID NO:1, the method comprising:
    - i) culturing a cell under conditions suitable for expression of the polypeptide, wherein said cell is transformed with a recombinant polynucleotide, and said recombinant polynucleotide comprises a promoter sequence operably linked to a polynucleotide encoding said polypeptide, and
    - ii) recovering the polypeptide so expressed.

10. An isolated antibody which specifically binds to a polypeptide of claim 1.

11. (As Once Amended.) An isolated polynucleotide selected from the group consisting of:

- a) a polynucleotide comprising the polynucleotide sequence of SEQ ID NO:2,

- b) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to the polynucleotide sequence of SEQ ID NO:2,
- c) a polynucleotide completely complementary to a polynucleotide of a),
- d) a polynucleotide completely complementary to a polynucleotide of b), and
- e) an RNA equivalent of a)-d).

13. A method of detecting a target polynucleotide in a sample, said target polynucleotide having a sequence of a polynucleotide of claim 11, the method comprising:

- a) hybridizing the sample with a probe comprising at least 20 contiguous nucleotides comprising a sequence complementary to said target polynucleotide in the sample, and which probe specifically hybridizes to said target polynucleotide, under conditions whereby a hybridization complex is formed between said probe and said target polynucleotide or fragments thereof, and
- b) detecting the presence or absence of said hybridization complex, and, optionally, if present, the amount thereof.

14. A method of claim 13, wherein the probe comprises at least 60 contiguous nucleotides.

15. A method of detecting a target polynucleotide in a sample, said target polynucleotide having a sequence of a polynucleotide of claim 11, the method comprising:

- a) amplifying said target polynucleotide or fragment thereof using polymerase chain reaction amplification, and
- b) detecting the presence or absence of said amplified target polynucleotide or fragment thereof, and, optionally, if present, the amount thereof.

16. A composition comprising a polypeptide of claim 1 and a pharmaceutically acceptable excipient.

17. A composition of claim 16, wherein the polypeptide has an amino acid sequence of SEQ ID NO:1.

18. A method for treating a disease or condition associated with decreased expression of functional SDHH, comprising administering to a patient in need of such treatment the composition of claim 16.

27. A method of screening a compound for effectiveness in altering expression of a target polynucleotide, wherein said target polynucleotide comprises a sequence of claim 5, the method comprising:

- a) exposing a sample comprising the target polynucleotide to a compound, under conditions suitable for the expression of the target polynucleotide,
- b) detecting altered expression of the target polynucleotide, and
- c) comparing the expression of the target polynucleotide in the presence of varying amounts of the compound and in the absence of the compound.

28. A method of assessing toxicity of a test compound, the method comprising:

- a) treating a biological sample containing nucleic acids with the test compound,
- b) hybridizing the nucleic acids of the treated biological sample with a probe comprising at least 20 contiguous nucleotides of a polynucleotide of claim 11 under conditions whereby a specific hybridization complex is formed between said probe and a target polynucleotide in the biological sample, said target polynucleotide comprising a polynucleotide sequence of a polynucleotide of claim 11 or fragment thereof,
- c) quantifying the amount of hybridization complex, and
- d) comparing the amount of hybridization complex in the treated biological sample with the amount of hybridization complex in an untreated biological sample, wherein a difference in the amount of hybridization complex in the treated biological sample is indicative of toxicity of the test compound.